PSEUDOMICROCOTYLE, A NEW MONOGENETIC TREMATODE.

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(With Plate X.)

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INTRODUCTION.

In April 1946 an unusually large shoal of *Elagatis bipinnulatus* (Stead), commonly called the Runner, was caught just off the Queensland coast, near Moreton Bay. This fish, which is apparently common in American waters, is not abundant around the coast of Australia. One of these fish was obtained intact as a museum specimen for the Biology Department of the University of Queensland. The author thus had the opportunity only to examine, in an inadequate manner, the gills of this one fish for ectoparasitic Trematodes. Four Monogenetic forms (Microcotylidae) were obtained and of these one specimen was too badly damaged to be of value, while another was partly damaged.

From a study of the literature obtainable, these Microcotylids appear to belong to a new genus which has been named *Pseudomicrocotyle*. The following description has been based on only three of the specimens obtained. The lengths given on each occasion are averages, the corresponding length in the type specimen being given in brackets.

The specimens were fixed in Kleinenberg's Picric Acid, stained with Acetic Acid Alum Carmine, and mounted in Canada Balsam. The type specimen is lodged in the Queensland Museum.

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Pseudomicrocotyle elagatis n.g.; n.sp.

Pseudomicrocotyle elagatis (fig. 1) has a typical Microcotylid appearance, the body tapering both anteriorly and posteriorly. The total body length is 3.75 mm. (3.45) and the maximum body width is 0.49 mm. (0.50) across approximately the middle of the whole body

length. The body width across the oral suckers is 0.13 mm. (0.14); across the genital atrium 0.19 mm. (0.18). The cotylophore is 1.08 mm. (1.05) long and so occupies approximately two-sevenths of the total body length; the anterior margin is 0.48 mm. (0.48) wide.

The cotylophore is not sharply demarcated from the rest of the body and bears from 38 to 65 pairs (48) of stalked suckers, each with a characteristic skeletal support. The suckers vary in size from the anterior to the posterior of the cotylophore, being largest in the middle. The anterior suckers have a length from 0.024 mm. and width from 0.032 mm. The largest suckers have a maximum length of 0.084 mm. (0.092) and a maximum width of 0.048 mm. (0.048). The skeletal support for each sucker appears to be composed of 8 pieces, variously hinged together, there being 3 major pieces which are terminally hooked. To one of the latter of these are attached 8 closely set small hooklets which give a comb-like appearance (figs. 3, 4). In the anterior and posterior suckers these hooklets measure 0.004 mm., while in the suckers of the middle region they are 0.008 mm. long. At the extreme posterior end of the cotylophore is a pair of closely set solid hooks of maximum length 0.30 mm. (0.30) (fig. 5).

The buccal cavity has a subterminal ventral aperture and within this lies a pair of oral suckers of width 0.05 mm. (0.05) and length 0.03 mm. (0.03), each having a small transverse septum. The pharynx lies close to the oral suckers, being 0.03 mm. (0.03) long and 0.020 mm. (0.02) wide. The oesophagus of length 0.07 mm. (0.06) has lateral diverticula, there being usually only 1 pair (each sub-branched) present in each specimen. The intestinal bifurcation occurs anteriorly to the genital atrium and 0.17 mm. (0.18) from the extreme anterior end of the body. There are 2 main longitudinal ducts in the digestive system, one along each side of the body and each having numerous lateral branched diverticula both internally and externally. The main ducts extend into the cotylophore, apparently not uniting posteriorly.

The testicular follicles are extremely numerous, closely packed and occupying an intervitelline field, approximately one quarter of the total body length. The follicles are round and of varying diameter (from 0.02 to 0.03 mm.). The total field occupied by these follicles is of maximum length 0.90 mm. (0.68) and of maximum width 0.26 mm. (0.27). The vas deferens passes anteriorly to the genital atrium, situated 0.24 mm. (0.24) from the anterior end of the body, and heavily armed with approximately uniform hooks 0.012 mm. (0.012) long. The maximum length of the genital armature is 0.03 mm. (0.03) and the maximum width 0.02 mm. (0.02) (fig. 2).

The ovary is conspicuous, occupying the middle region of the body. It commences immediately in front of the testicular field loops and passes anteriorly to the right and then to the left and once again passes posteriorly. The ovary is unusual in that it extends relatively a long way forwards, even anteriorly to the commencement of the

paired vitelline ducts. The maximum length of the field occupied by the ovary is 0.47 mm. (0.42). The two lateral fields of the vitellarium, which commence 0.52 mm. (0.53) from the extreme anterior end of the body, are quite distinct both anteriorly and posteriorly. The two vitelline fields, 1.83 mm. (1.65) long, extend posteriorly only approximately halfway along the testicular field, and hence do not pass into the cotylophore. Paired vitelline ducts arise from the vitelline fields, 1.69 mm. (1.65) from the anterior end of the body. The left vitelline duct, 0.09 mm. (0.09) long, and the right vitelline duct, 0.05 mm. (0.05), unite to form the common vitelline duct of length 0.11 mm. (0.11). This is joined by the oviduct, and the genito-intestinal canal passes to the left. The thin walled uterus passes anteriorly to open into the genital atrium.

One complete egg, seen within the uterus, is too misshapen for accurate measurements to be made from it, but it has short, stout appendages at both poles, the anterior measuring 0.12 mm. and posterior 0.08 mm.

GENERIC DIAGNOSIS: Pseudomicrocotyle: n.g.

Fam. *Microcotylidae.* Medium sized body; mouth aperture subterminal; buccal cavity with paired oral suckers. Genital atrium ventral and heavily armed with hooks. Ovary large, extending further forwards beyond the origin of the paired vitelline ducts; cotylophore with numerous small suckers each with a typical complex skeletal support bearing a series of small hooklets; cotylophore bearing also one pair of small hooks at its posterior extremity.

Pseudomicrocotyle: Very closely resembles *Microcotyle* (van Beneden & Hesse), from which it may be distinguished by the following features. The cotylophore of *Pseudomicrocotyle* besides possessing paired posterior hooks, not present in *Microcotyle,* has suckers with skeletal supports of much greater complexity than the corresponding structures in the latter; each of these suckers also possesses a series of small hooks (which give a comb-like appearance) which are not present in *Microcotyle.* The testicular follicles in *Pseudomicrocotyle* are much more numerous and smaller than in *Microcotyle* and the ovary extends relatively over a much greater length than in the latter.

Pseudomicrocotyle shows some resemblance to *Microcotyloides* (Fujii) but differs in that it possesses hooks on the cotylophore, in the greater complexity in the skeletal supports of the suckers of the cotylophore, and in the arrangement and size of the ovary. In *Microcotyloides* also the genital atrium is unspined, and it possesses complex terminal male genitalia not present in *Pseudomicrocotyle.*

LITERATURE.

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EXPLANATION TO PLATE X.

Figs. 1-5.—Pseudomicrotyle elagatis: 1, whole specimen, dorsal view; 2, genital armature; 3, 4, two views skeleton of posterior sucker; 5, posterior hooks on cotylophore.

Abbreviations.

a.c., alimentary canal; c.v.d., common vitelline duct; e., egg; g.a., genital atrium; g.i.c., genito-intestinal canal; h., hooks on cotylophore; m., mouth; o., ovary; oes., oesophagus; o.s., oral sucker; ph., pharynx; ps., posterior sucker; t.f., testicular follicles; v.d., vas deferens; vit., vitellarium; vit.d., vitelline duct; u., uterus.